# BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

## IMAGES ARE BEST AVAILABLE COPY.

**As rescanning documents *will not* correct images, please do not report the images to the Image Problem Mailbox.**

WEST

# Freeform Search

**Database:** US Patents Full-Text Database; US Pre-Grant Publication Full-Text Database; JPO Abstracts Database; EPO Abstracts Database; Derwent World Patents Index; IBM Technical Disclosure Bulletins

**Term:** 134 not 127

**Display:** 100 **Documents in Display Format:** CIT **Starting with Number** 1

**Generate:** ○ Hit List ◉ Hit Count ○ Image

Search | Clear | Help | Logout | Interrupt

Main Menu | Show S Numbers | Edit S Numbers | Preferences

## Search History

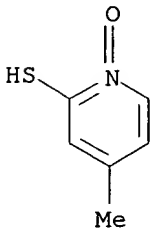
**Today's Date: 11/17/2001**

| DB Name | Query | Hit Count | Set Name |
|---|---|---|---|
| USPT,PGPB,JPAB,EPAB,DWPI,TDBD | l34 not l27 | 35 | L35 |
| USPT,PGPB,JPAB,EPAB,DWPI,TDBD | l32 not l31 | 128 | L34 |
| USPT,PGPB,JPAB,EPAB,DWPI,TDBD | l31 and corrosion | 28 | L33 |
| USPT,PGPB,JPAB,EPAB,DWPI,TDBD | l30 and corrosion | 156 | L32 |
| USPT,PGPB,JPAB,EPAB,DWPI,TDBD | l30 and (oxazolidine or methyloxazolidine or triazine$10 near5 (triethanol or ethanol) or methylenebis or methylene bis ) | 83 | L31 |
| USPT,PGPB,JPAB,EPAB,DWPI,TDBD | l29 and (isothiazol$10 or benzisothiazol$10 or benz?isothiazol$10) | 467 | L30 |
| USPT,PGPB,JPAB,EPAB,DWPI,TDBD | l10 and (chelat$10 or complex$10 or sequest$10) near20 (phosphate or polyphosphate or edta or ethylenediaminetetraacetic or ethylenediamine or ethylene diamine or nitriloacetic or glycine or gluconic or | 803 | L29 |

| | | | |
|---|---|---|---|
| | polyoxycarboxylic or phosphonic or glutaric or succinic or polyaspartic or poly aspartic) | | |
| USPT,PGPB,JPAB,EPAB,DWPI,TDBD | l10 and (chelat$10 or complex$10 or sequest$10) | 2070 | L28 |
| USPT,PGPB,JPAB,EPAB,DWPI,TDBD | (benzotriazole or methylbenzotriazole or triazole) and l26 | 180 | L27 |
| USPT,PGPB,JPAB,EPAB,DWPI,TDBD | l10 and corrosion near (anti or inhibit$5 or protect$10) | 412 | L26 |
| USPT,PGPB,JPAB,EPAB,DWPI,TDBD | l10 and corrosion near50 (benzotriazole or methylbenzotriazole or triazole) | 9 | L25 |
| USPT,PGPB,JPAB,EPAB,DWPI,TDBD | l22 and l5 | 7 | L24 |
| USPT,PGPB,JPAB,EPAB,DWPI,TDBD | l22 and l4 | 3 | L23 |
| USPT,PGPB,JPAB,EPAB,DWPI,TDBD | l10 and (l4 or l5 or l6) | 521 | L22 |
| USPT,PGPB,JPAB,EPAB,DWPI,TDBD | 773281 | 6 | L21 |
| USPT,PGPB,JPAB,EPAB,DWPI,TDBD | 19534532 | 2 | L20 |
| USPT,PGPB,JPAB,EPAB,DWPI,TDBD | 9852416 | 3 | L19 |
| USPT,PGPB,JPAB,EPAB,DWPI,TDBD | 19722858 | 1 | L18 |
| USPT,PGPB,JPAB,EPAB,DWPI,TDBD | 2274779 | 5 | L17 |
| USPT,PGPB,JPAB,EPAB,DWPI,TDBD | 9833380 | 2 | L16 |
| USPT,PGPB,JPAB,EPAB,DWPI,TDBD | 19705085 | 1 | L15 |
| USPT,PGPB,JPAB,EPAB,DWPI,TDBD | l10 and (l5 and l6) | 3 | L14 |
| USPT,PGPB,JPAB,EPAB,DWPI,TDBD | l10 and ((n-formal or (condensa$10 near (aldehyde or formaldehyde or acetaldehyde or propionaldehyde) near (amine or alkanolamine or oxazolidine or ethanolamine or isopropanol amine or ethanol amine or isopropanolamine or aminopropanol or amino near propanol or methyloxazolidine or oxazolidine)) or l4) and l5 and l6) | 2 | L13 |
| USPT,PGPB,JPAB,EPAB,DWPI,TDBD | l10 and (l4 and l5 and l6) | 2 | L12 |
| USPT,PGPB,JPAB,EPAB,DWPI,TDBD | l10 and (l5 and l6 and l7) | 3 | L11 |
| USPT,PGPB,JPAB,EPAB,DWPI,TDBD | l9 and l8 and l7 | 3368 | L10 |
| USPT,PGPB,JPAB,EPAB,DWPI,TDBD | l6 or stabilizer | 219688 | L9 |
| USPT,PGPB,JPAB,EPAB,DWPI,TDBD | l5 or antifung$10 or fungicid$10 | 72713 | L8 |
| USPT,PGPB,JPAB,EPAB,DWPI,TDBD | l4 or antibact$10 or bactericid$10 | 84392 | L7 |
| USPT,PGPB,JPAB,EPAB,DWPI,TDBD | pyrion na or pyrionna or zinc pyrithione or pyrion disulfide or pyrion disulphide or sodium bromate or nabro3 or nabro".sub.3" or mercaptobenzothiazole or mercaptopyridine | 9041 | L6 |

| | | | |
|---|---|---|---|
| USPT,PGPB,JPAB,EPAB,DWPI,TDBD | kathon 893 or kathon 893t or kathon 886 or zonenfex or znonen fex | 63 | L5 |
| USPT,PGPB,JPAB,EPAB,DWPI,TDBD | l2 or l1 | 23 | L4 |
| USPT,PGPB,JPAB,EPAB,DWPI,TDBD | l2 and l1 | 2 | L3 |
| USPT,PGPB,JPAB,EPAB,DWPI,TDBD | grotan bk | 9 | L2 |
| USPT,PGPB,JPAB,EPAB,DWPI,TDBD | mar 71 | 16 | L1 |

L35 ANSWER 1 OF 8 REGISTRY COPYRIGHT 2002 ACS
RN 55154-52-4 REGISTRY
CN 2-Pyridinethiol, 4-methyl-, 1-oxide, sodium salt (9CI) (CA INDEX NAME)
OTHER NAMES:
CN **4-Methyl-2-mercaptopyridine N-oxide sodium salt**
MF C6 H7 N O S . Na
LC STN Files: CA, CAPLUS, TOXCENTER
CRN (34341-26-9)



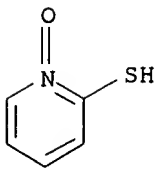

● Na

2 REFERENCES IN FILE CA (1962 TO DATE)
2 REFERENCES IN FILE CAPLUS (1962 TO DATE)

L35 ANSWER 2 OF 8 REGISTRY COPYRIGHT 2002 ACS
RN 35218-64-5 REGISTRY
CN 2-Pyridinethiol, 1-oxide, compd. with phenylhydrazine (1:1) (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Hydrazine, phenyl-, compd. with 2-pyridinethiol 1-oxide (1:1) (9CI)
OTHER NAMES:
CN **Phenylhydrazine salt of 2-mercaptopyridine N-oxide**
MF C6 H8 N2 . C5 H5 N O S
LC STN Files: CA, CAPLUS, IFICDB, IFIPAT, IFIUDB, TOXCENTER, USPATFULL

CM 1

CRN 1121-31-9
CMF C5 H5 N O S



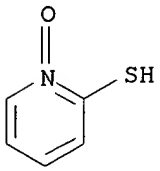

CM 2

CRN 100-63-0
CMF C6 H8 N2

$H_2N-NH-Ph$

2 REFERENCES IN FILE CA (1962 TO DATE)
2 REFERENCES IN FILE CAPLUS (1962 TO DATE)

L35 ANSWER 3 OF 8 REGISTRY COPYRIGHT 2002 ACS
RN 34154-10-4 REGISTRY
CN 2-Pyridinethiol, 1-oxide, potassium salt (8CI, 9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Potassium, (2-pyridylthio)-, N-oxide (7CI)
OTHER NAMES:
CN **Potassium 2-mercaptopyridine N-oxide**
DR 75164-72-6
MF C5 H5 N O S . K
CI COM
LC STN Files: CA, CAOLD, CAPLUS, IFICDB, IFIPAT, IFIUDB, TOXCENTER, USPATFULL
CRN (1121-31-9)



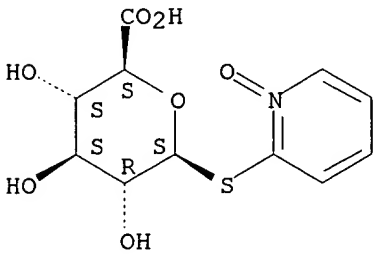

● K

10 REFERENCES IN FILE CA (1962 TO DATE)
10 REFERENCES IN FILE CAPLUS (1962 TO DATE)
1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L35 ANSWER 4 OF 8 REGISTRY COPYRIGHT 2002 ACS
RN 33776-71-5 REGISTRY
CN .beta.-D-Glucopyranosiduronic acid, 1-oxido-2-pyridinyl 1-thio- (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN .beta.-D-Glucopyranosiduronic acid, 2-pyridinyl 1-thio-, N-oxide
CN Glucopyranosiduronic acid, 2-pyridyl-1-thio-, oxide, .beta.-D- (8CI)
OTHER NAMES:
CN **2-Mercaptopyridine-N-oxide S-glucuronide**
CN 2-Pyridinethiol 1-oxide glucuronide
FS STEREOSEARCH
MF C11 H13 N O7 S

CI COM
LC STN Files: CA, CAPLUS, TOXCENTER

Absolute stereochemistry.



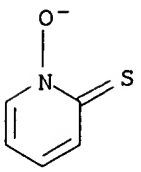
**PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT**

5 REFERENCES IN FILE CA (1962 TO DATE)
5 REFERENCES IN FILE CAPLUS (1962 TO DATE)

L35 ANSWER 5 OF 8 REGISTRY COPYRIGHT 2002 ACS
RN 22574-14-7 REGISTRY
CN Ethanaminium, N,N,N-triethyl-, salt with 1-hydroxy-2(1H)-pyridinethione (1:1) (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN 2(1H)-Pyridinethione, 1-hydroxy-, ion(1-), N,N,N-triethylethanaminium (9CI)
CN 2(1H)-Pyridinethione, 1-hydroxy-, ion(1-), tetraethylammonium (8CI)
CN Ammonium, tetraethyl-, salt with 1-hydroxy-2(1H)-pyridinethione (1:1) (8CI)
OTHER NAMES:
CN **2-Mercaptopyridine N-oxide tetraethylammonium salt**
CN Tetraethylammonium pyrithione
CN Tetraethylammonium salt with 2-pyridinethiol 1-oxide (1:1)
DR 24771-34-4
MF C8 H20 N . C5 H4 N O S
LC STN Files: BEILSTEIN*, CA, CAPLUS, CASREACT, TOXCENTER
(*File contains numerically searchable property data)

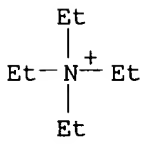
CM 1

CRN 45529-38-2
CMF C5 H4 N O S



CM 2

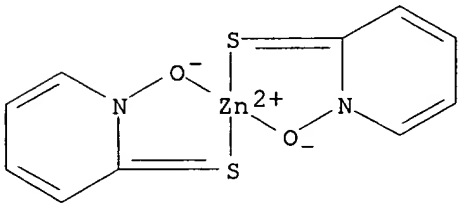
CRN 66-40-0
CMF C8 H20 N



8 REFERENCES IN FILE CA (1962 TO DATE)
8 REFERENCES IN FILE CAPLUS (1962 TO DATE)

L35 ANSWER 6 OF 8 REGISTRY COPYRIGHT 2002 ACS
RN 13463-41-7 REGISTRY
CN Zinc, bis[1-(hydroxy-.kappa.O)-2(1H)-pyridinethionato-.kappa.S2]-, (T-4)-(9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN 2(1H)-Pyridinethione, 1-hydroxy-, zinc complex
CN Zinc, bis(1-hydroxy-2(1H)-pyridinethionato)- (6CI, 7CI, 8CI)
CN Zinc, bis(1-hydroxy-2(1H)-pyridinethionato-O,S)-, (T-4)-
OTHER NAMES:
CN 1-Hydroxy-2-pyridinethione, zinc salt
CN 2-Mercaptopyridine 1-oxide zinc salt
CN 2-Pyridinethiol 1-oxide zinc salt
CN 2-Pyridinethiol N-oxide zinc salt
CN BC-J
CN Biocut ZP
CN Bis(1-hydroxy-2(1H)-pyridinethionato)zinc
CN Bis(1-hydroxy-2-(1H)-pyridinethionato)zinc
CN Bis(2-pyridinethiol 1-oxide)zinc
CN Evafine P 50
CN Finecide ZPT
CN FSB 8332
CN Hokucide ZPT
CN Marukacide YP-DP
CN Niccanon SKT
CN Niccanon ZP
CN OM 1563
CN Omadine Zinc
CN Pyrithione zinc
CN Tomicide Z 50
CN Tomicide ZPT 50
CN Vancide P
CN Zinc 1-hydroxy-2-pyridinethione
CN **Zinc 2-mercaptopyridine N-oxide**
CN Zinc 2-pyridinethiol 1-oxide
CN Zinc Omadine
CN Zinc pyrethion
CN Zinc pyridine-2-thione-N-oxide
CN Zinc pyrithione

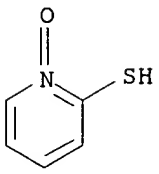
CN Zinc, bis(2-pyridinylthio)-, N,N'-dioxide
CN Zincpolyanemine
CN ZPT
AR 3865-77-8
DR 162400-43-3, 1192-70-7, 1320-68-9, 55172-61-7, 16782-00-6, 17652-47-0, 14376-32-0, 15686-64-3, 3138-01-0, 3590-23-6, 3865-77-8, 51148-10-8, 51406-57-6, 109702-19-4, 74261-71-5, 31089-48-2, 35430-20-7, 39412-61-8, 118480-78-7, 192458-89-2, 208398-70-3, 226883-65-4, 244778-79-8
MF C10 H8 N2 O2 S2 Zn
CI CCS, COM
LC STN Files: ADISINSIGHT, ADISNEWS, AGRICOLA, ANABSTR, AQUIRE, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CAOLD, CAPLUS, CBNB, CEN, CHEMCATS, CHEMLIST, CIN, CSCHEM, CSNB, DDFU, DIOGENES, DRUGU, EMBASE, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*, MSDS-OHS, NAPRALERT, NIOSHTIC, PIRA, PROMT, RTECS*, TOXCENTER, USAN, USPAT2, USPATFULL
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**, WHO
(**Enter CHEMLIST File for up-to-date regulatory information)




821 REFERENCES IN FILE CA (1962 TO DATE)
19 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
822 REFERENCES IN FILE CAPLUS (1962 TO DATE)
31 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L35 ANSWER 7 OF 8 REGISTRY COPYRIGHT 2002 ACS
RN 3811-73-2 REGISTRY
CN 2-Pyridinethiol, 1-oxide, sodium salt (8CI, 9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN 2-Pyridinethiol, 1-oxide, sodium deriv. (6CI)
CN Sodium, (2-pyridylthio)-, N-oxide (7CI)
OTHER NAMES:
CN 1-Oxo-2-pyridinethiol sodium salt
CN 2-Mercaptopyridine 1-oxide sodium salt
CN **2-Mercaptopyridine N-oxide sodium salt**
CN 2-Mercaptopyridine oxide sodium salt
CN 2-Pyridinethiol N-oxide sodium salt
CN 2-Pyridylthiol-N-oxide sodium salt
CN San-aibac Sodium Omadine
CN Sodium 2-mercaptopyridine 1-oxide
CN **Sodium 2-mercaptopyridine N-oxide**
CN Sodium 2-pyridinethiol 1-oxide
CN Sodium 2-pyridinethiol N-oxide
CN Sodium 2-pyridinethiolate 1-oxide
CN Sodium 2-pyridinethiolate N-oxide
CN Sodium pyridine-1-oxide-2-thiolate

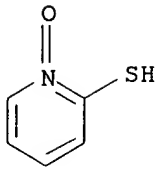
CN Sodium pyridine-2-thione-N-oxide
CN Sodium pyrithione
CN Sodium, (2-pyridinylthio)-, N-oxide
CN Thione (reagent)
CN Topcide 280
DR 75164-71-5, 5412-36-2
MF C5 H5 N O S . Na
CI COM
LC STN Files: AQUIRE, BEILSTEIN*, BIOBUSINESS, BIOSIS, CA, CAOLD, CAPLUS, CASREACT, CHEMCATS, CHEMINFORMRX, CHEMLIST, CSCHEM, CSNB, IFICDB, IFIPAT, IFIUDB, IPA, MSDS-OHS, NIOSHTIC, PROMT, RTECS*, SPECINFO, TOXCENTER, USPAT2, USPATFULL
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)
CRN (1121-31-9)




● Na

299 REFERENCES IN FILE CA (1962 TO DATE)
8 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
300 REFERENCES IN FILE CAPLUS (1962 TO DATE)
11 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

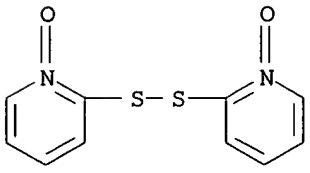
L35 ANSWER 8 OF 8 REGISTRY COPYRIGHT 2002 ACS
RN 1121-31-9 REGISTRY
CN 2-Pyridinethiol, 1-oxide (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)
OTHER NAMES:
CN 2-Mercaptopyridine 1-oxide
CN 2-Mercaptopyridine monoxide
CN **2-Mercaptopyridine N-oxide**
CN 2-Pyridinethiol N-oxide
CN Omadine
FS 3D CONCORD
MF C5 H5 N O S
CI COM
LC STN Files: ANABSTR, BEILSTEIN*, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CAOLD, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CIN, CSCHEM, EMBASE, HODOC*, IFICDB, IFIPAT, IFIUDB, NIOSHTIC, PHAR, PROMT, RTECS*, TOXCENTER, USPAT2, USPATFULL
(*File contains numerically searchable property data)
Other Sources: EINECS**, NDSL**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)




**PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT**

281 REFERENCES IN FILE CA (1962 TO DATE)
46 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
281 REFERENCES IN FILE CAPLUS (1962 TO DATE)
22 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L37 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2002 ACS
RN **3696-28-4** REGISTRY
CN Pyridine, 2,2'-dithiobis-, 1,1'-dioxide (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Pyridine, 2,2'-dithiodi-, 1,1'-dioxide (6CI, 7CI, 8CI)
OTHER NAMES:
CN (1-Oxo-2-pyridyl) disulfide
CN 2,2'-Dipyridyl disulfide bis-N-oxide
CN 2,2'-Dipyridyl disulfide N,N'-bisoxide
CN 2,2'-Dithiobis(pyridine 1-oxide)
CN 2,2'-Dithiobis(pyridine N-oxide)
CN 2,2'-Dithiobispyridine 1,1'-dioxide
CN 2,2'-Dithiodipyridine 1,1'-dioxide
CN Bis(2-pyridine-N-oxide)disulfide
CN Bis(2-pyridyl 1-oxide) disulfide
CN Bis(2-pyridyl) disulfide di-N-oxide
CN Bis(2-pyridyl-N-oxide) disulfide
CN Bis(N-oxido-2-pyridyl) disulfide
CN Di-2-pyridyl disulfide N,N'-dioxide
CN Dipyrithione
CN NSC 677437
CN Omadine disulfide
CN Omadine DS
CN OSY 20
FS 3D CONCORD
DR 90829-79-1
MF C10 H8 N2 O2 S2
CI COM
LC STN Files: BEILSTEIN*, BIOBUSINESS, BIOSIS, CA, CAOLD, CAPLUS, CASREACT,
CHEMCATS, CHEMINFORMRX, CHEMLIST, CSCHEM, DDFU, DRUGU, EMBASE, HODOC*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, RTECS*, SPECINFO, TOXCENTER, USAN,
USPATFULL
(*File contains numerically searchable property data)
Other Sources: EINECS**, NDSL**, TSCA**, WHO
(**Enter CHEMLIST File for up-to-date regulatory information)



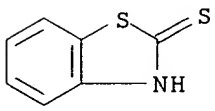
**PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT**

241 REFERENCES IN FILE CA (1962 TO DATE)
17 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
241 REFERENCES IN FILE CAPLUS (1962 TO DATE)

24 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L39 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2002 ACS
RN **149-30-4** REGISTRY
CN 2(3H)-Benzothiazolethione (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN 2-Benzothiazolethiol (8CI)
CN 2-Benzothiazolinethione (6CI, 7CI)
OTHER NAMES:
CN 1,3-Benzothiazole-2-thiol
CN 1,3-Benzothiazole-2-thione
CN 2,3-Dihydrobenzothiazole-2-thione
CN 2-Benzothiazolyl mercaptan
CN 2-MBT
CN 2-Mercaptobenzothiazole
CN 2-Mercaptobenzthiazole
CN 2-Sulfanylbenzothiazole
CN Accel M
CN Accelerator M
CN Aero Promoter 412
CN Benz-1,3-thiazolidine-2-thione
CN Captax
CN Dermacid
CN Ekagom G
CN Kaptaks
CN Kaptax
CN MBT
CN MBT (vulcanization accelerator)
CN Mebetizol
CN Mebetizole
CN Mebithizol
CN Mercaptobenzothiazole
CN Mercaptobenzthiazole
CN Mertax
CN Nocceler M
CN Nocceler M-P
CN Nonflex NB
CN Nuodeb 84
CN Perkacit MBT
CN Pneumax MBT
CN Rotax
CN Royal MBT
CN Sanceler M
CN Soxinol M
CN Thiotax
CN Vulkacit M
CN Vulkacit Mercapto
CN Vulkacit Mercapto/C
CN Vulkacit Mercapto/MG
CN Vulkafil ZN 94TT01
CN Wobezit M
AR 27157-85-3
FS 3D CONCORD
DR 12640-90-3, 55199-93-4, 119170-41-1, 112242-83-8, 81605-65-4, 4464-58-8
MF C7 H5 N S2
CI COM

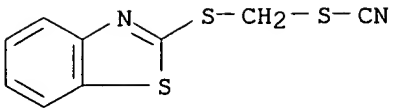
LC STN Files: AGRICOLA, ANABSTR, AQUIRE, BEILSTEIN*, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CIN, CSCHEM, CSNB, DDFU, DETHERM*, DIOGENES, DIPPR*, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT, ENCOMPPAT2, GMELIN*, HODOC*, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*, MSDS-OHS, NIOSHTIC, PDLCOM*, PIRA, PROMT, RTECS*, SPECINFO, SYNTHLINE, TOXCENTER, ULIDAT, USPAT2, USPATFULL
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)




**PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT**

4834 REFERENCES IN FILE CA (1962 TO DATE)
202 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
4840 REFERENCES IN FILE CAPLUS (1962 TO DATE)
8 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L42 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2002 ACS
RN **21564-17-0** REGISTRY
CN Thiocyanic acid, (2-benzothiazolylthio)methyl ester (8CI, 9CI) (CA INDEX NAME)
OTHER NAMES:
CN 2-(Thiocyanatomethylthio)benzo[d]thiazole
CN 2-(Thiocyanomethylthio)benzothiazole
CN 2-[(Thiocyanatomethyl)thio]benzothiazole
CN Afrotin CRO
CN Alentisan
CN Ascend
CN Benthiazole
CN BN 30
CN Bulab 6009
CN Busan 1030
CN Busan 1118
CN Busan 15
CN Busan 30
CN Busan 30-1
CN Busan 30A
CN Busan 30I
CN Busan 30L
CN Busan 30WB
CN Busan 30WBA
CN Busan 70
CN Busan 71
CN Busan 72
CN Busan 72A
CN Busan 80
CN Delsan 30
CN Guzafan
CN Ichiban
CN KVK 733059
CN Nu-flow T
CN Nusan
CN Sancelant TMB
CN Superdavloxan
CN TCMTB
FS 3D CONCORD
DR 6441-45-8, 56532-60-6, 56996-45-3, 120946-97-6, 64441-44-7, 64441-45-8
MF C9 H6 N2 S3
CI COM
LC STN Files: AGRICOLA, ANABSTR, AQUIRE, BEILSTEIN*, BIOBUSINESS, BIOSIS, CA, CABA, CAOLD, CAPLUS, CASREACT, CBNB, CHEMCATS, CHEMLIST, CIN, CSCHEM, CSNB, HSDB*, IFICDB, IFIPAT, IFIUDB, MEDLINE, MSDS-OHS, NIOSHTIC, PIRA, PROMT, RTECS*, SPECINFO, TOXCENTER, USPAT2, USPATFULL
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**
(**Enter CHEMLIST File for up-to-date regulatory information)



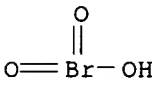
**PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT**

390 REFERENCES IN FILE CA (1962 TO DATE)
16 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
390 REFERENCES IN FILE CAPLUS (1962 TO DATE)

=> s nabro3
L43 1 NABRO3

=> d

L43 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2002 ACS
RN 7789-38-0 REGISTRY
CN Bromic acid, sodium salt (8CI, 9CI) (CA INDEX NAME)
OTHER NAMES:
CN Neutralizer K 126
CN Neutralizer K 140
CN Neutralizer K 938
CN Sodium bromate
CN **Sodium bromate (NaBrO3)**
DR 38869-75-9, 38869-76-0
MF Br H O3 . Na
CI COM
LC STN Files: AGRICOLA, AQUIRE, BIOSIS, CA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CIN, CSCHEM, CSNB, DETHERM*, EMBASE, GMELIN*, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*, MSDS-OHS, NIOSHTIC, PDLCOM*, PIRA, PROMT, RTECS*, TOXCENTER, TULSA, USPAT2, USPATFULL, VTB
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)
CRN (7789-31-3)



1065 REFERENCES IN FILE CA (1962 TO DATE)
8 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
1067 REFERENCES IN FILE CAPLUS (1962 TO DATE)
21 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L13 ANSWER 6 OF 8 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 1994:501979 CAPLUS
DOCUMENT NUMBER: 121:101979
TITLE: **Water**-containing microbicidal compositions for industrial goods
INVENTOR(S): Kameda, Koji; Kusaka, Daiki
PATENT ASSIGNEE(S): Takeda Chemical Industries Ltd, Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
INT. PATENT CLASSIF.:
MAIN: A01N047-12
SECONDARY: A01N025-02; A01N031-02; A01N043-04
CLASSIFICATION: 5-2 (Agrochemical Bioregulators)
Section cross-reference(s): 40, 42, 58
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| JP 06145014 | A2 | 19940524 | JP 1992-327281 | 19921111 |

OTHER SOURCE(S): MARPAT 121:101979
ABSTRACT:
A **water**-contg. microbial compn. (for industrial goods such as paint, adhesive) contains a **carbamate**, an **epoxy** compd., and HO(CnH2nO)mR1 (R1 = C1-4 alkyl; m = 1-4; n = 2-4). For example, a microbicide consisted of 3-iodo-2-propynyl butylcarbamate 5, methylcarbitol 69.8, ***water*** 25, and neopentyl **glycol** diglycidyl ether 0.2 part by wt. The industrial goods includes coating materials, building materials, and textiles.

SUPPL. TERM: **carbamate** compd microbicide industrial goods
INDEX TERM: Building materials
Coating materials
Textiles
(**carbamate** microbicidal agents in)
INDEX TERM: Bactericides, Disinfectants, and Antiseptics
(carbamates, for industrial goods)
INDEX TERM: Epoxides
ROLE: BIOL (Biological study)
(microbicidal compn. contg., for industrial goods)
INDEX TERM: 463-77-4D, Carbamic acid, derivs. 17557-23-2, Neopentyl **glycol** diglycidyl ether 156758-73-5, 3-Iodo-2-propynyl butylcarbamate-methyl carbitol-neopentyl **glycol** diglycidyl ether mixt. 156758-74-6, 3-Iodo-2-propynyl butylcarbamate-methylcarbitol-2-ethylhexyl glycidyl ether mixt.
ROLE: BIOL (Biological study)
(microbicidal compn. contg., for industrial goods)

L1 ANSWER 1 OF 1 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 1996:179223 CAPLUS
DOCUMENT NUMBER: 124:236544
TITLE: **Preservation** of **water-based cooling lubricating oils** [against microbial degradation]
AUTHOR(S): Anker, W.
CORPORATE SOURCE: BODE Chem. G.m.b.H. und Co., Hamburg, 22525, Germany
SOURCE: Mikrob. Materialzerstoerung Materialschutz (1995), 151-61. Editor(s): Brill, Holger. Fischer: Jena, Germany.
CODEN: 62OVAJ
DOCUMENT TYPE: Conference; General Review
LANGUAGE: German
CLASSIFICATION: 51-0 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 10

ABSTRACT:
A review, with 13 refs., of biocides and biostats for water-based [esp. metalworking] cooling lubricating oils. Classes of biocides discussed include:
(1) aldehydes (formaldehyde and glutaraldehyde) and aldehyde precursors (O-formals and hemiformals; N-formals, aminals, and hemiaminals; and 1,3-propanediol-type compds.), isothiazolinones, and other compds.

SUPPL. TERM: review metalworking emulsion lubricant biocide; aldehyde metalworking lubricating oil biocide review
INDEX TERM: Aldehydes, uses
Aminals
ROLE: BAC (Biological activity or effector, except adverse);
MOA (Modifier or additive use); BIOL (Biological study);
USES (Uses)
(classes and action mechanisms of biocides and biostats for water-based metalworking cooling lubricating oils)
INDEX TERM: Aminals
ROLE: BAC (Biological activity or effector, except adverse);
MOA (Modifier or additive use); BIOL (Biological study);
USES (Uses)
(hemi-; classes and action mechanisms of biocides and biostats for water-based metalworking cooling lubricating
oils)
INDEX TERM: Lubricating oil additives
(biocides, classes and action mechanisms of biocides and biostats for water-based metalworking cooling lubricating
oils)
INDEX TERM: Acetals
ROLE: BAC (Biological activity or effector, except adverse);
MOA (Modifier or additive use); BIOL (Biological study);
USES (Uses)
(formals, classes and action mechanisms of biocides and biostats for water-based metalworking cooling lubricating

oils)

INDEX TERM: Acetals
ROLE: BAC (Biological activity or effector, except adverse);
MOA (Modifier or additive use); BIOL (Biological study);
USES (Uses)
(formals, hemi-, classes and action mechanisms of biocides and biostats for water-based metalworking cooling lubricating oils)

INDEX TERM: Lubricating oil additives
(metalworking, water-based, biocides and biostats; classes and action mechanisms of biocides and biostats for water-based metalworking cooling lubricating oils)

INDEX TERM: 50-00-0, Formaldehyde, uses 111-30-8, Glutaraldehyde
ROLE: BAC (Biological activity or effector, except adverse);
FMU (Formation, unclassified); MOA (Modifier or additive use); BIOL (Biological study); FORM (Formation, nonpreparative); USES (Uses)
(biocide; classes and action mechanisms of biocides and biostats for water-based metalworking cooling lubricating
oils)

INDEX TERM: 52-51-7, 2-Bromo-2-nitro-1,3-propanediol 126-11-4, Tris(hydroxymethyl)nitromethane 140-95-4, Dimethylolurea 2634-33-5, 1,2-Benzisothiazol-3(2H)-one 2682-20-4 2832-19-1, N-Methylolchloracetamide 3586-55-8 3811-73-2,
Sodium 2-pyridinethiol-N-oxide 4719-04-4 5625-90-1, Methylenebis(morpholine) 7779-27-3, 1,3,5-Triethyl-1,3,5-hexahydrotriazine 14548-60-8 26172-55-4 26530-20-1 51200-87-4, 4,4-Dimethyloxazolidine 55406-53-6, 3-Iodo-2-propynylbutyl carbamate 66204-44-2 82633-78-1
ROLE: BAC (Biological activity or effector, except adverse);
MOA (Modifier or additive use); BIOL (Biological study);
USES (Uses)
(biocide; classes and action mechanisms of biocides and biostats for water-based metalworking cooling lubricating
oils)

INDEX TERM: 10043-35-3D, Boric acid (H3BO3), alkanolamine esters
ROLE: BAC (Biological activity or effector, except adverse);
MOA (Modifier or additive use); BIOL (Biological study);
USES (Uses)
(biocides; classes and action mechanisms of biocides and biostats for water-based metalworking cooling lubricating
oils)

=>

L16 ANSWER 17 OF 70 EUROPATFULL COPYRIGHT 2003 WILA

PATENT APPLICATION

ACCESSION NUMBER: 368593 EUROPATFULL EW 199020 FS OS STA B
TITLE: Controlling fungal or bacterial growth in synthetic metalworking fluids.
INVENTOR(S): Hollis, Cecil George, 1767 Poplar Estates Parkway, Germantown Tennessee 38138, US;
Sorrelle, Paul H., 6151 Grayling Drive, Jacksonville Florida 32256, US
PATENT ASSIGNEE(S): BUCKMAN LABORATORIES INTERNATIONAL, INC., 1256 North McLean Boulevard P.O. Box 8305, Memphis Tennessee 38108-0305, US
PATENT ASSIGNEE NO: 1031200
AGENT: Watkins, Arnold Jack et al, European Patent Attorney Frank B. Dehn & Co. Imperial House 15-19 Kingsway, London WC2B 6UZ, GB
AGENT NUMBER: 37381
OTHER SOURCE: ESP1990023 EP 0368593 A1 900516
SOURCE: Wila-EPZ-1990-H20-T1
DOCUMENT TYPE: Patent
LANGUAGE: Anmeldung in Englisch; Veroeffentlichung in Englisch
DESIGNATED STATES: R AT; R BE; R CH; R DE; R ES; R FR; R GB; R GR; R IT; R LI; R LU; R NL; R SE
PATENT INFO.PUB.TYPE: EPA1 EUROPAEISCHE PATENTANMELDUNG
PATENT INFORMATION:

| PATENT NO | KIND | DATE |
|---|---|---|
| EP 368593 | A1 | 19900516 |

'OFFENLEGUNGS' DATE: 19900516
APPLICATION INFO.: EP 1989-311475 19891106
PRIORITY APPLN. INFO.: US 1988-267337 19881104
INT. PATENT CLASSIF.:

| | | | |
|---|---|---|---|
| MAIN: | C10M161-00 | | |
| SECONDARY: | C10M173-00 | | |
| INDEX: | C10M161-00 | C10M135:36 | C10M149:12 |
| | C10M149:14. | | |
| | C10M173-0 | 0 | C10M135:36 |
| | C10M149:12 | | |
| | C10M149:14. | | |
| | C10N030-16 | | |

FIELD AVAILABILITY: AG
ABEN; DETDEN; CLMEN
PAGE COUNT: 20
NUMBER OF CLAIMS: 10; 7

ABSTRACT (ENGLISH):
A method of controlling fungal or bacterial growth in a synthetic metalworkig fluid comprising the addition to said fluid of
(a1) 5-chloro-2-methyl-4-**isothiazolin**-3-one
and
(a2) 2-methyl-4-**isothiazolin**-3-one
and
(b) an ionene polymer
wherein the ratio by weight of the sum of components (a1) and (a2) to component (b) is form 1:99 to 99:1 and wherein the amounts of the components are synergistically effective to control fungal or bacterial growth in said fluid.

Compositions containing these three components are also disclosed.

DESCRIPTION (ENGLISH):

The invention is directed to synergistic antimicrobial combinations of 5-chloro-2-methyl-4-**isothiazolin**-3-one and 2-methyl-4-**isothiazolin**-3-one with ionene polymers and their use in controlling fungal and/or bacterial growth in synthetic metal.shy. working fluids.

Ionene polymers, i.e., cationic polymers containing quaternary nitrogens in the polymer backbone, are known to be useful in controlling bacteria and algae in various aqueous systems. U.S. Patents Nos. 3,874,870, 3,931,319, 4,027,020, 4,089,977, 4,506,081, and 4,581,058 give various examples of these polymers.

One such polymer is poly[oxyethylene-(dimethyliminio) ethylene(dimethyliminio) ethylene dichloride]. This polymer is manufactured and sold by Buckman Laboratories under the names **Busan** 77 and WSCP as a biocide used primarily in aqueous systems, including aqueous use-dilutions of metalworking fluids for bacterial control.

This polymer has been reported as useful, in combination with **hexahydro-1,3,5-tris(2-hydroxyethyl)-S-triazine** and sodium **pyrithione**, for facilitating the control of microorganisms, including fungi and bacteria, in a synthetic metalworking fluid. (Zabik et al., "Unique Use of a Cationic Microbicide for Extending the Life of a Synthetic Metalworking Fluid in a Manufacturing Environment," Journal of the Society of Tribologists and Lubrication Engineers, 677-679 (August 1988), based on a presentation at the 42nd Annual Meeting in Anaheim, California, May 11-14, 1987). This ionene polymer has also been sold for use in metalworking fluids.

Another such polymer is the ionene polymer produces by the condensation of equimolar amounts of dimethylamine and epichloro.shy. hydrin, as disclosed in U.S. Patent No. 4,111,679.

5-Chloro-2-methyl-4-**isothiazolin**-3-one and 2-methyl-4-iso.shy. thiazolin-3-one are commercially available biocidal compounds manufactured and sold in combination by Rohm and Haas under the name **Kathon** 886. The **Kathon** 886 biocide is a 15% active mixture which contains 75% of the 5-chloro-compound and 25% of the 2-methyl- compound. This combination has been sold for use in a synthetic metalworking fluid

Both of these types of products are used to control micro.shy. organisms in industrial settings. Many industries experience problems caused by microorganisms. These problems are especially present where aqueous systems are used.

The machining industry is such an industry in which problem-.shy. causing microorganisms are encountered. In machining operations, metalworking fluids are used primarily to reduce friction and heat and thus reduce wear and prolong the life of equipment.

Unfortunately, metalworking fluids have many properties which make them an ideal medium for the growth of bacteria and fungi. These microorganisms can cause such problems as: the buildup of slime/microbial deposits on machine surfaces, the clogging of jets and lines, the deterioration of the metalworking fluid properties itself, enhanced corrosion, and health and odor problems. Although bacteria are important in the bio.shy. deterioration of cutting fluids, fungi and yeast play an important role as well, especially in synthetic fluids (Bennet E.O., "The Deterioration of Metalworking Fluids", Prog. Industrial Microbiology, 13, p. 121 (1974)).

As these microorganisms grow in the metalworking fluid, the fluid begins to deteriorate and lose many of its essential properties. Its pH can drop

and other chemical changes can occur until the fluid no longer is able to provide adequate lubrication. At this point, the fluid must be replaced with fresh fluid. This is costly and results in loss of production time.

The previously mentioned problems have resulted in the extensive use of biocides in metalworking fluid systems. Biocides may be incorporated in fluid concentrate or added to diluted fluids once they are in the holding tanks of the machine works.

There are many commercially available biocides used today. Each of these biocides is generally useful, but each it attended by a variety of impediments. Some biocides have odor problems, or create hazards with respect to storage, use or handling, which limit their utility. Presently, no one type of compound has achieved on established predominance in the areas mentioned.

Economic factors should be considered before choosing a particular biocide for use in metalworking fluid systems. Such economic considerations apply to both the cost of the biocide and the expense of its application. The cost performance index of any biocide is derived from the basic cost of the material, its effectiveness per unit weight, the duration of its biocidal or biostatic effect in the system treated, and the ease and frequency of its addition to the system treated.

At present, none of the commercially available biocides is capable of exhibiting a prolonged biocidal effect. Instead, physical conditions, such as temperature and chemical reactivity with ingredients present in the system, often diminish or eliminate the effectiveness of the biocides. For example, many systems contain organic material which may react with a specific biocide or render it ineffective.

Several patents have been granted previously showing that **Kathon** 886 biocide behaves synergistically with other chemicals or classes of chemicals. U.S. Patent No. 3,929,561 discloses that **Kathon** 886 biocide can be blended with certain sulfones to produce a synergistic biocidal composition.

Furthermore, U.S. Patent No. 4,379,137 discloses the synergistic combination of certain ionene polymers, including **Busan** 77 polymer, with **Kathon** 886 biocide. These combinations are therein disclosed as useful in controlling bacteria in aqueous systems, and a test is reported concerning the efficacy of **Kathon** 886 biocide and an ionene polymer utilized in the wash water in air handling systems. However, one cannot predict that, because two biocides are synergistic in water, the two biocides will also be synergistic in a complex fluid such as a synthetic metalworking fluid. In particular, a synthetic metalworkig fluid contains organic and inorganic materials that could interfere with the activity of one or both of the biocides.

**Kathon** 886 biocide is usually used at a low concentrations, e.g., a few parts per million, to treat industrial aqueous systems. However, this dosage is not adequate to preserve systems in which heavy microbial growth occurs. Consequently, the dosage must be increased to significantly higher dosages to inhibit microbial growth. The high cost of **Kathon** 886 biocide makes its use at high dosages prohibitive. Also, **Kathon** 886 biocide, at the higher concentrations, may be also likely to cause irritation to those workers present during application.

Metalworking fluid systems in which heavy microbial growth occurs would benefit most from the practice of the present invention, described below. The practice of the present invention would nonetheless benefit many systems, whether or not heavy microbial growth occurs, because it provides for a more economical use of **Kathon** 886 biocide, an expensive

biocide.

The present invention controls fungal or bacterial growth in a synthetic metalworking fluid. The invention encompasses a method of controlling fungal or bacterial growth in a synthetic metalworking fluid comprising the addition to said fluid of

(a1) 5-chloro-2-methyl-4-**isothiazolin**-3-one

and

(a2) 2-methyl-4-**isothiazolin**-3-one

and

(b) an ionene polymer

wherein the ratio by weight of the sum of components (a1) and (a2) to component (b) is from 1:99 to 99:1 and wherein the amounts of the components are synergistically effective to control fungal or bacterial growth in said fluid.

Components (a1), (a2) and (b) can be added to the metalworkig fluid together or separately, in any order. Conveniently components (a1) and (a2) may be added in the form of a mixture one with another.

Further aspects of the invention provide a composition comprising:

(a) a mixture of 5-chloro-2-methyl-4-**isothiazolin**-.shy. 3-one and 2-methyl-4-**isothiazolin**-3-one; and

(b) an ionene polymer;

wherein the ratio of component (a) to component (b) is from about 1:99 to about 99:1; and wherein the composition is formulated to control fungal or bacterial growth synergistically in a synthetic metalworking fluid;

and also methods of controlling fungal or bacterial growth in a synthetic metalworking fluid by the addition of said composition.

The invention can be obtained by addition of the components defined above to a concentrated synthetic metalworking fluid. In such case the invention encompasses a concentrated synthetic metalworking fluid containing components (a) and (b) as defined above, wherein the ratio of component (a) to component (b) is from about 1:99 to about 99:1; and wherein the amounts of the components (a) and (b) are synergistically effective to control fungal or bacterial growth when said fluid is diluted and used at a metalworking site.

The method can also be practiced by separate addition of the components (a) and (b) to the diluted synthetic metalworking fluid at the metalworking site. Such separate administration of components (a) and (b) can be done simultaneously or sequentially.

The ionene polymer may be chosen from a wide variety of known polymers based on compatibility of the ionene polymer with the metalworking fluid in use. Poly[oxyethylene(dimethylimino)-.shy. ethylene(dimethyliminio)ethylene dichloride] is known to be compatible with synthetic metalworking fluids. Another ionene polymer known to be compatible is the condensation product of dimethylamine and epichlorohydrin.

The ratio of component (a) to component (b) may range from 1:99 to about 99:1, preferably 20:80 to 80:20, more preferably 40:60 to 60:40, and most preferably 50:50.

The benefits of the invention are most evident in systems that are highly contaminated with microorganisms. These are systems with bacterial and fungal counts greater than 1.0 x 10.sup6./mL which are incapable of experiencing substantial count reduction when treated separately with low dosages of either **Busan** 77 polymer or **Kathon** 886 biocide. In these systems a low dosage of **Kathon** 886 biocide or **Busan** 77 polymer fails to provide adequate preservation.

One of the unique features of this invention is that when the 4-**isothiazolin**-3-one compounds are used in conjunction with an ionene polymer, it is possible in many instances, to reduce the total fungal or bacterial count to zero cells per mL and maintain it at this level. When either of the biocides is used alone (at the same concentration as when used in conjunction), it fails to achieve and maintain a zero level of microbial growth.

The synergistic activity of the combinations described above has been confirmed using standard laboratory techniques as illustrated in the examples below.

Synergism was determined by the method of Kull, F.C., Euman, P.C., Sylwestrowicz, H.D., and Mayer, R.L., Applied Microbiology 9:538-541 (1961) using the ratio:

(QA).over.(Qa) + (QB).over.(Qb) wherein Qa = Concentration of Compound A, in parts per million, acting alone, which produced an endpoint.

Qb = Concentration of Compound B, in parts per million, acting alone, which produced and endpoint.

QA = Concentration of Compound A, in parts per million, in the mixture, which produced an endpoint.

QB = Concentration of Compound B, in parts per million, in the mixture, which produced an endpoint.

When the sum of QA/Qa + QB/Qb is greater than 1, antagonism is indicated, and when the sum is equal to 1, additivity is indicated. When less than one, synergism is demonstrated.

To disclose the nature of the present invention still more clearly, the following illustrative example is given. It is to be understood, however, that the invention is not limited to the specific conditions or details set forth in this example except insofar as such limitations are specified in the appended claims.

Example

Synergistic Combination of **Kathon** 886 biocide and **Busan** 77 polymer is Synthetic Metalworking Fluids.

The combination of **Kathon** 886 biocide and **Busan** 77 polymer was tested for bacterial and fungal control in a synthetic metal.shy. working fluid. The results were analyzed for synergism using the method described above. The test method employed was the Standard Method for the Evaluation of Antimicrobial Agents in Aqueous Metalworking Fluids (ASTM Designation: E686-80).

The ASTM test is a multiple challenge test designed to simulate industrial conditions. The biocides are each added to 450 mL aliquots of a synthetic metalworking fluid dilution. Controls contained only one of the biocides or no biocide.

The metalworking fluid samples are then inoculated with 50 mL of a mixed, partially defined microbial culture and aerated on a specific time cycle. The cycle is composed of 5 days of aeration followed by two days without, which simulates an industrial work schedule. Every week, for a minimum of 6 weeks or until the test fails, the metalworking fluid samples are measured for microbial growth. This is done by enumerating the bacteria and fungi using standard plate-counting techniques. Aliquots were streaked and incubated on Saboraud dextrose agar to determine fungal survival.

The microorganisms used in the metalworking fluid inoculum included:

1) "Wild" fungi and bacteria obtained from a spoiled industrial fluid.
2) Staphylococcus aureus
3) Pseudomonas aeruginosa

4) Klebsiella pneumoniae
5) Escherichia coli

A microbial count of less than 1.0 x 10.sup4. colony forming units (cfu) per mL was indicative of very good preservation. This was also used as an endpoint for the synergism calculation. <table>

From Table 1 is can be concluded that **Kathon** 886 biocide and **Busan** 77 polymer when used in conjunction provide better microbial preservation of a synthetic metalworking fluid than when used individually. A combination of 10.0 ppm **Kathon** 886 biocide and 10.0 ppm **Busan** 77 polymer provides preservation that higher concentrations of either **Kathon** 886 or **Busan** 77 polymer biocide alone fail to provide.

For example, it requires 100.0 ppm of **Kathon** 886 biocide to reduce the fungal count to that found when 10.0 ppm of both **Busan** 77 polymer and **Kathon** 886 biocide were used. **Busan** 77 polymer did not control fungi at 20.0 ppm, and it is known that it will not control fungi at any level up to 2000 ppm. Furthermore, it is possible to reduce the bacterial and fungal counts to zero and maintain that level by using **Kathon** 886 biocide and **Busan** 77 polymer in combination.

The calculations for evaluating synergism are shown in Table 2. <table>

It can be concluded from Table 2 and its corresponding calculations that **Kathon** 886 biocide and **Busan** 77 polymer do behave synergistically to inhibit fungal and bacterial growth in synthetic metalworking fluids. Using the method of Kull et al., antimicrobial synergism has been demonstrated against both fungi and bacteria. In all of the calculations compound A,a is **Kathon** 886 biocide and compound B,b is **Busan** 77 polymer. For bacteria, the sum of the quotients QA/Qa and QB/Qb equals .7, which is less than 1 so synergism exists. Against fungi a lower value at .6 was shown; therefore, **Kathon** 886 biocide and **Busan** 77 polymer appear to exhibit better synergism against fungi than bacteria.

In interpreting Table 2, it should also be noted that **Busan** 77 polymer by itself does not offer much antimicrobial activity in metalworking fluids unless the concentration is significantly higher than the highest concentration tested. Therefore, in the synergism calculations a value of 20 ppm was used, even though a much higher value could have been used. Furthermore, increasing the level of **Busan** 77 polymer would not negatively affect the calculations - in fact it would only demonstrate greater synergism based on the method of Kull et al.

The synergistic antifungal and antibacterial combination described previously has synergistic activity when employed at appropriate concentrations and may be used to inhibit the growth of fungi and bacteria in metalworking fluids. It is obvious to those skilled in the art that the required synergistically effective amount (concentration) will vary with particular organisms and particular applications and can readily be determined by routine experimentation. Use of a synergistically effective amount enables the use of substantially smaller amounts of each component (a) and (b) than would be necessary for each component if used alone and than would be necessary if a mere additive effect from combining (a) and (b) were obtained.

In general, however, effective fungicidal and bactericidal response will be obtained when the synergistic combination is employed in concentrations ranging from about 0.1 to about 5,000 ppm 5-chloro-2-methyl-4-

**isothiazolin**-3-one and 2-methyl-4-**isothiazolin**-3-one, preferably 0.1 to 100 ppm, and from about 0.1 to about 10,000 ppm of ionene polymer, preferably 0.1 to 500 ppm.

CLAIMS (ENGLISH):

1. 1. A method of controlling fungal or bacterial growth in a synthetic metalworking fluid comprising the addition to said fluid of

(a1) 5-chloro-2-methyl-4-**isothiazolin**-3-one

and

(a2) 2-methyl-4-**isothiazolin**-3-one

and

(b) an ionene polymer

wherein the ratio by weight of the sum of components (a1) and (a2) to component (b) is from 1:99 to 99:1 and wherein the amounts of the components are synergistically effective to control fungal or bacterial growth in said fluid.

2. 2. A method as claimed in claim 1, wherein said ratio is from about 20:80 to about 80:20.

3. 3. A method as claimed in claim 2, wherein said ratio is from about 40:60 to about 60:40.

4. 4. A method as claimed in claim 3, wherein said ratio is about 50:50.

5. 5. A method as claimed in any preceding claim, wherein said ionene polymer is poly[oxyethylene(dimethyliminio)-.shy. ethylene(dimethyliminio)ethylene dichloride].

6. 6. A method as claimed in any one of claims 1 to 4, wherein said ionene polymer is the condensation product of about equimolar amounts of epichlorohydrin and dimethylamine.

7. 7. A method as claimed in any preceding claim wherein components (a1) and (a2) are added to said metalworking fluid in the form of a mixture one with another.

8. 8. A composition comprising:

(a) a mixture of 5-chloro-2-methyl-4-**isothiazolin**-.shy. 3-one and 2-methyl-4-**isothiazolin**-3-one; and

(b) an ionene polymer;

wherein the ratio of component (a) to component (b) is from about 1:99 to about 99:1; and wherein the composition is formulated to control fungal or bacterial growth synergistically in a synthetic metalworking fluid.

9. 9. A method of controlling fungal or bacterial growth in a synthetic metalworking fluid comprising the step of adding to said metalworking fluid the composition of claim 8 in an amount synergistically effective to control said fungal or bacterial growth.

10. 10. A concentrated synthetic metalworking fluid containing

(a) a mixture of 5-chloro-2-methyl-4-**isothiazolin**-.shy. 3-one and 2-methyl-4-**isothiazolin**-3-one; and

(b) an ionene polymer;

wherein the ratio of component (a) to component (b) is from about 1:99 to about 99:1; and wherein the amounts of components (a) and (b) are synergistically effective to control fungal or bacterial growth then said fluid is diluted and used at a metalworking site.

CLAIMS FOR THE FOLLOWING CONTRACTING STATE:ES

CLAIMS (ENGLISH):

1. 1. A method of controlling fungal or bacterial growth in a synthetic metalworking fluid comprising the addition to said fluid of

(a1) 5-chloro-2-methyl-4-isothiazolin-3-one

and

(a2) 2-methyl-4-isothiazolin-3-one

and

(b) an ionene polymer

wherein the ratio by weight of the sum of components (a1) and (a2) to component (b) is from 1:99 to 99:1 and wherein the amounts of the components are synergistically effective to control fungal or bacterial growth in said fluid.

2. 2. A method as claimed in claim 1, wherein said ratio is from about 20:80 to about 80:20.

3. 3. A method as claimed in claim 2, wherein said ratio is from about 40:60 to about 60:40.

4. 4. A method as claimed in claim 3, wherein said ratio is about 50:50.

5. 5. A method as claimed in any preceding claim, wherein said ionene polymer is poly[oxyethylene(dimethyliminio).shy. ethylene(dimethyliminio)ethylene dichloride].

6. 6. A method as claimed in any one of claims 1 to 4, wherein said ionene polymer is the condensation product of about equimolar amounts of epichlorohydrin and dimethylamine.

7. 7. A method as claimed in any preceding claim wherein components (a1) and (a2) are added to said metalworking fluid in the form of a mixture one with another.

=>

L15 ANSWER 82 OF 142 CAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1993:228244 CAPLUS
DOCUMENT NUMBER: 118:228244
TITLE: Synergistic combinations of 2-( **thiocyanomethylthio)benzothiazole** with **hexahydro-1,3, 5-tris(2- hydroxyethyl)-s-triazine** in controlling fungal and bacterial growth in aqueous fluids
INVENTOR(S): Oppong, David; Hollis, C. George
PATENT ASSIGNEE(S): Buckman Laboratories International, Inc., USA
SOURCE: PCT Int. Appl., 27 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
INT. PATENT CLASSIF.:
MAIN: A01N043-78
SECONDARY: A01N043-64; C10M141-08
CLASSIFICATION: 5-2 (Agrochemical Bioregulators)
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| WO 9304584 | A1 | 19930318 | WO 1992-US7272 | 19920902 |
| W: AT, AU, BB, BG, BR, CA, CH, CS, DE, DK, ES, FI, GB, HU, JP, KP, KR, LK, LU, MG, MN, MW, NL, NO, PL, RO, RU, SD, SE | | | | |
| RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, SN, TD, TG | | | | |
| US 5198440 | A | 19930330 | US 1991-759000 | 19910905 |
| ZA 9206533 | A | 19930503 | ZA 1992-6533 | 19920828 |
| AU 9225658 | A1 | 19930405 | AU 1992-25658 | 19920902 |
| AU 657245 | B2 | 19950302 | | |
| EP 604511 | A1 | 19940706 | EP 1992-919615 | 19920902 |
| EP 604511 | B1 | 19961127 | | |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, SE | | | | |
| JP 06510541 | T2 | 19941124 | JP 1992-505293 | 19920902 |
| BR 9206533 | A | 19950425 | BR 1992-6533 | 19920902 |
| AT 145514 | E | 19961215 | AT 1992-919615 | 19920902 |
| ES 2096102 | T3 | 19970301 | ES 1992-919615 | 19920902 |
| CA 2117080 | C | 19990119 | CA 1992-2117080 | 19920902 |
| JP 3245164 | B2 | 20020107 | JP 1993-505293 | 19920902 |
| FI 9401054 | A | 19940304 | FI 1994-1054 | 19940304 |
| NO 9400776 | A | 19940504 | NO 1994-776 | 19940304 |

PRIORITY APPLN. INFO.: US 1991-759000 A 19910905
WO 1992-US7272 A 19920902

ABSTRACT:
Mixts. of **hexahydro-1,3,5-tris (2-hydroxyethyl)-s-triazine** (I) with 2-( **thiocyanomethylthio)benzothiazole** (II) are synergistic microbicides in aq. fluids, such as metalworking fluids. I-II mixts. synergistically controlled Fusarium, Staphylococcus aureus, Pseudomonas aeruginosa, and other microorganisms in metalworking fluids.

SUPPL. TERM: microbicide synergism triazine benzothiazole deriv
INDEX TERM: Lubricating oils
(metalworking, microbicide for, synergistic mixt. of benzothiazole and triazine deriv. as)
INDEX TERM: Bactericides, Disinfectants, and Antiseptics
Fungicides and Fungistats
(synergistic, benzothiazole and triazine deriv.-contg. compns., for metalworking fluids)

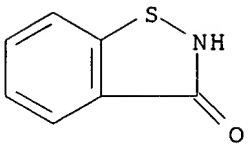
INDEX TERM: 147576-04-3
ROLE: BIOL (Biological study)
(as microbicide, synergistic, for ecosystems)

L46 ANSWER 12 OF 13 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 6
ACCESSION NUMBER: 1976:108327 CAPLUS
DOCUMENT NUMBER: 84:108327
TITLE: Additive with bactericidal action for oil-in-water emulsions
INVENTOR(S): Runge, Gerhard B.
PATENT ASSIGNEE(S): Exxon Research and Engineering Co., USA
SOURCE: Ger. Offen., 20 pp.
CODEN: GWXXBX
DOCUMENT TYPE: Patent
LANGUAGE: German
INT. PATENT CLASSIF.: C10M
CLASSIFICATION: 51-7 (Fossil Fuels, Derivatives, and Related Products)
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

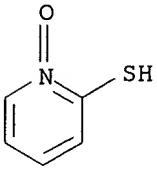
| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| DE 2524543 | A1 | 19751218 | DE 1975-2524543 | 19750603 |
| SE 7506518 | A | 19751208 | SE 1975-6518 | 19750606 |
| SE 422809 | B | 19820329 | | |
| SE 422809 | C | 19820708 | | |
| FR 2273862 | A1 | 19760102 | FR 1975-17828 | 19750606 |
| FR 2273862 | B1 | 19820924 | | |

PRIORITY APPLN. INFO.: GB 1974-25341 19740607
ABSTRACT:
A bactericidal additive (270-600 ppm) for lubricating and hydraulic oils was composed of a mixt. of hexahydro-1,3,5-tris(2-hydroxyethyl)-s-triazine [ ***4719-04-4*** ] with 1,2-benzisothiazolone [**2634-33-5**] and 2(3H)-pyridinethione N-oxide Na salt [**3811-73-2**], and o-benzyl-p-chlorophenol [120-32-1], chloro-2-phenylphenol [27478-26-8], or 2-phenylphenol [90-43-7].

SUPPL. TERM: lubricating oil bactericidal additive; hydraulic oil bactericidal additive; phenol bactericidal additive lubricant; triazine bactericidal additive lubricant
INDEX TERM: Lubricating oil additives
(bactericidal, phenols and triazines as)
INDEX TERM: Bactericides, Disinfectants and Antiseptics
(phenol and triazine derivs. as, for lubricating oils)
INDEX TERM: 90-43-7 120-32-1 **2634-33-5 3811-73-2 4719-04-4** 27478-26-8
ROLE: USES (Uses)
(bactericidal additive, for lubricating oils)
IT **2634-33-5 3811-73-2 4719-04-4**
RL: USES (Uses)
(bactericidal additive, for lubricating oils)
RN 2634-33-5 CAPLUS
CN 1,2-Benzisothiazol-3(2H)-one (9CI) (CA INDEX NAME)

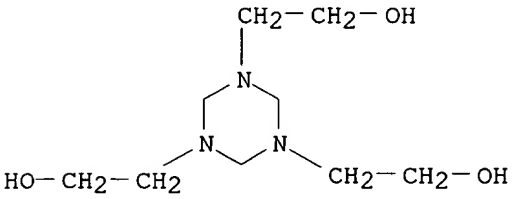


RN 3811-73-2 CAPLUS
CN 2-Pyridinethiol, 1-oxide, sodium salt (8CI, 9CI) (CA INDEX NAME)



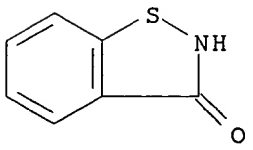
● Na

RN 4719-04-4 CAPLUS
CN 1,3,5-Triazine-1,3,5(2H,4H,6H)-triethanol (9CI) (CA INDEX NAME)



=>

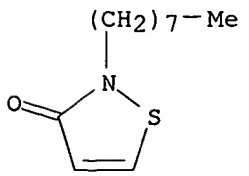
L25 ANSWER 13 OF 14 REGISTRY COPYRIGHT 2002 ACS
RN 2634-33-5 REGISTRY
CN 1,2-Benzisothiazol-3(2H)-one (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN 1,2-Benzisothiazolin-3-one (6CI, 7CI, 8CI)
OTHER NAMES:
CN 1,2-Benzisothiazol-3-one
CN **1,2-Benzisothiazolone**
CN 1,2-Benzoisothiazol-3-one
CN 3-Hydroxy-1,2-benzisothiazole
CN **Benzisothiazolone**
CN Bestcide 200K
CN Proxel AB
CN Proxel BD
CN Proxel BD 20
CN Proxel BDN
CN Proxel CF
CN Proxel GXL
CN Proxel PL
CN Proxel Press Paste
CN Proxel TN
CN Proxel XL 2
CN San-aibac AP
CN Topcide 600
CN XBINX
FS 3D CONCORD
DR 54392-14-2, 101964-01-6, 75037-67-1, 40991-37-5
MF C7 H5 N O S
CI COM
LC STN Files: ANABSTR, AQUIRE, BEILSTEIN*, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CIN, CSCHEM, CSNB, DDFU, DRUGU, EMBASE, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MSDS-OHS, NIOSHTIC, PIRA, PROMT, RTECS*, SPECINFO, SYNTHLINE, TOXCENTER, USPAT2, USPATFULL
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)




**PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT**

618 REFERENCES IN FILE CA (1962 TO DATE)
64 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
620 REFERENCES IN FILE CAPLUS (1962 TO DATE)
16 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

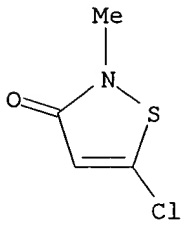
L28 ANSWER 3 OF 3 REGISTRY COPYRIGHT 2002 ACS
RN 26530-20-1 REGISTRY
CN 3(2H)-Isothiazolone, 2-octyl- (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN 4-Isothiazolin-3-one, 2-octyl- (8CI)
OTHER NAMES:
CN 2-n-Octyl-3-isothiazolone
CN 2-n-Octyl-4-isothiazolin-3-one
CN 2-n-Octyl-4-isothiozolin-3-one
CN **2-n-Octylisothiazolin-3-one**
CN 2-Octyl-3-isothiazolinone
CN 2-Octyl-3-isothiazolone
CN 2-Octyl-4-isothiazolin-3-one
CN 2-Octyl-4-isothiazoline-3-one
CN 2-Octyl-4-isothiazolinone
CN A-DW
CN Kathon 4200
CN Kathon 893
CN Kathon 893F
CN Kathon 893T
CN Kathon LM
CN Kathon LP Preservative
CN Kathon SP 70
CN Micro-Chek 11
CN Micro-Chek 11D
CN Octhilinone
CN Pancil
CN Pancil T
CN RH 893
CN Skane 8
CN Skane M 8
CN Vinyzene IT 3000DIDP
FS 3D CONCORD
DR 12673-72-2, 122667-23-6, 53028-82-3
MF C11 H19 N O S
CI COM
LC STN Files: AGRICOLA, ANABSTR, AQUIRE, BEILSTEIN*, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CAPLUS, CASREACT, CHEMCATS, CHEMLIST, CIN, CSCHEM, CSNB, DDFU, DRUGU, EMBASE, IFICDB, IFIPAT, IFIUDB, MEDLINE, MRCK*, MSDS-OHS, NIOSHTIC, PIRA, PROMT, RTECS*, SPECINFO, TOXCENTER, ULIDAT, USPAT2, USPATFULL
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)



**PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT**

402 REFERENCES IN FILE CA (1962 TO DATE)
37 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
404 REFERENCES IN FILE CAPLUS (1962 TO DATE)

L30 ANSWER 8 OF 9 REGISTRY COPYRIGHT 2002 ACS
RN 26530-03-0 REGISTRY
CN **3(2H)-Isothiazolone, 5-chloro-2-methyl-, hydrochloride (9CI)**
(CA INDEX NAME)
OTHER CA INDEX NAMES:
CN **4-Isothiazolin-3-one, 5-chloro-2-methyl-, hydrochloride (8CI)**
OTHER NAMES:
CN **5-Chloro-2-methyl-3-isothiazolone hydrochloride**
CN **5-Chloro-2-methyl-4-isothiazolin-3-one hydrochloride**
DR 116680-96-7
MF C4 H4 Cl N O S . Cl H
LC STN Files: BEILSTEIN*, CA, CAPLUS, CASREACT, CHEMLIST, IFICDB, IFIPAT, IFIUDB, TOXCENTER, USPATFULL
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)
CRN (26172-55-4)

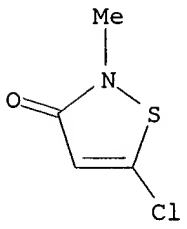



● HCl

24 REFERENCES IN FILE CA (1962 TO DATE)
24 REFERENCES IN FILE CAPLUS (1962 TO DATE)

L30 ANSWER 9 OF 9 REGISTRY COPYRIGHT 2002 ACS
RN 26172-55-4 REGISTRY
CN **3(2H)-Isothiazolone, 5-chloro-2-methyl- (9CI)** (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN **4-Isothiazolin-3-one, 5-chloro-2-methyl- (8CI)**
OTHER NAMES:
CN **2-Methyl-5-chloro-3-isothiazolone**
CN **2-Methyl-5-chloroisothiazolin-3-one**
CN **5-Chloro-2-methyl-2H-isothiazol-3-one**
CN **5-Chloro-2-methyl-3(2H)-isothiazolone**
CN **5-Chloro-2-methyl-3-isothiazolone**
CN **5-Chloro-2-methyl-4-isothiazolin-3-one**
CN **5-Chloro-2-methylisothiazolin-3-one**
CN **5-Chloro-N-methylisothiazolin-3-one**
CN **5-Chloro-N-methylisothiazolone**
CN Kathon CG 5243

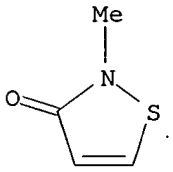
CN Methylchloroisothiazolinone
CN **N-Methyl-5-chloroisothiazolin-3-one**
CN **N-Methyl-5-chloroisothiazolone**
FS 3D CONCORD
DR 137662-59-0
MF C4 H4 Cl N O S
CI COM
LC STN Files: AGRICOLA, ANABSTR, AQUIRE, BEILSTEIN*, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CANCERLIT, CAPLUS, CASREACT, CEN, CHEMCATS, CHEMLIST, CHEMSAFE, CIN, CSCHEM, CSNB, EMBASE, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MSDS-OHS, NIOSHTIC, PIRA, PROMT, RTECS*, SPECINFO, TOXCENTER, ULIDAT, USPAT2, USPATFULL
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)




**PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT**

701 REFERENCES IN FILE CA (1962 TO DATE)
81 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
702 REFERENCES IN FILE CAPLUS (1962 TO DATE)

L16 ANSWER 10 OF 11 REGISTRY COPYRIGHT 2002 ACS
RN 26172-54-3 REGISTRY
CN 3(2H)-Isothiazolone, 2-methyl-, hydrochloride (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN 4-Isothiazolin-3-one, 2-methyl-, hydrochloride (8CI)
OTHER NAMES:
CN 2-Methyl-3-isothiazolone hydrochloride
CN **2-Methyl-4-isothiazolin-3-one hydrochloride**
DR 116680-95-6
MF C4 H5 N O S . Cl H
LC STN Files: BEILSTEIN*, CA, CAPLUS, CASREACT, CHEMCATS, CHEMLIST, IFICDB,
IFIPAT, IFIUDB, TOXCENTER, USPATFULL
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)
CRN (2682-20-4)

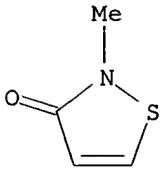



● HCl

28 REFERENCES IN FILE CA (1962 TO DATE)
28 REFERENCES IN FILE CAPLUS (1962 TO DATE)

L16 ANSWER 11 OF 11 REGISTRY COPYRIGHT 2002 ACS
RN 2682-20-4 REGISTRY
CN 3(2H)-Isothiazolone, 2-methyl- (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN 4-Isothiazolin-3-one, 2-methyl- (7CI, 8CI)
OTHER NAMES:
CN 2-Methyl-3(2H)-isothiazolone
CN 2-Methyl-3-isothiazolone
CN **2-Methyl-4-isothiazolin-3-one**
CN 2-Methyl-4-isothiazoline-3-one
CN Kathon CG 243
CN Kordek 50
CN Methylisothiazolinone
CN MIT
CN N-Methylisothiazolin-3-one
CN N-Methylisothiazolone
CN Neolone
CN Neolone M 50
CN ProClin 150
FS 3D CONCORD

DR 125794-71-0, 184720-17-0
MF C4 H5 N O S
CI COM
LC STN Files: AGRICOLA, ANABSTR, AQUIRE, BEILSTEIN*, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CHEMCATS, CHEMLIST, CHEMSAFE, CIN, CSCHEM, CSNB, DIOGENES, EMBASE, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MSDS-OHS, NIOSHTIC, PIRA, PROMT, RTECS*, SPECINFO, TOXCENTER, ULIDAT, USPAT2, USPATFULL
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)

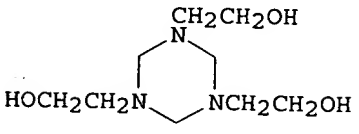



**PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT**

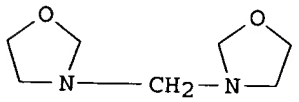
555 REFERENCES IN FILE CA (1962 TO DATE)
54 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
559 REFERENCES IN FILE CAPLUS (1962 TO DATE)
2 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

=>

L6 ANSWER 210 OF 1400 CAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1979:22868 CAPLUS
DOCUMENT NUMBER: 90:22868
TITLE: Condensation of monoethanolamine with formaldehyde
AUTHOR(S): Gafarov, A. N.; Punegova, L. N.; Loginova, E. I.; Novikov, S. S.; Titov, N. K.
CORPORATE SOURCE: Kazan. Fiz.-Tekh. Inst., Kazan, USSR
SOURCE: Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya (1978), (9), 2189
CODEN: IASKA6; ISSN: 0002-3353
DOCUMENT TYPE: Journal
LANGUAGE: Russian
CLASSIFICATION: 28-6 (Heterocyclic Compounds (More Than One Hetero Atom))
GRAPHIC IMAGE:



I



II

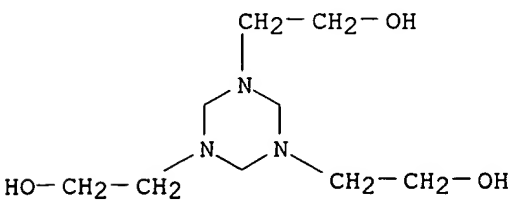
ABSTRACT:
The condensation of HOCH2CH2NH2 with HCHO gives, in addn. to the expected s-triazine I, the bisoxazolidine II. The yield of II increases with increasing amt. HCHO and is quant. at HOCH2CH2NH2-HCHO = 1:1.5.

SUPPL. TERM: ethanolamine cyclocondensation formaldehyde; **oxazolidine methylenebis**
INDEX TERM: Cyclocondensation reaction
(of ethanolamine with formaldehyde, N,N'-methylenebisoxazolidine formation in)
INDEX TERM: 50-00-0, reactions
ROLE: RCT (Reactant); RACT (Reactant or reagent)
(cyclocondensation of, with ethanolamine)
INDEX TERM: 141-43-5, reactions
ROLE: RCT (Reactant); RACT (Reactant or reagent)
(cyclocondensation of, with formaldehyde)
INDEX TERM: 66204-43-1P
ROLE: FORM (Formation, nonpreparative); PREP (Preparation)
(formation of, in condensation of ethanolamine with formaldehyde)

=> d 210 iall

L6 ANSWER 210 OF 1400 CAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1979:22868 CAPLUS
DOCUMENT NUMBER: 90:22868
TITLE: Condensation of monoethanolamine with formaldehyde
AUTHOR(S): Gafarov, A. N.; Punegova, L. N.; Loginova, E. I.; Novikov, S. S.; Titov, N. K.
CORPORATE SOURCE: Kazan. Fiz.-Tekh. Inst., Kazan, USSR
SOURCE: Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya (1978), (9), 2189
CODEN: IASKA6; ISSN: 0002-3353
DOCUMENT TYPE: Journal
LANGUAGE: Russian

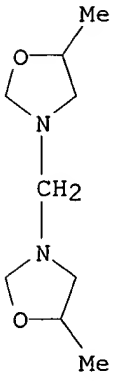
L14 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2002 ACS
RN 4719-04-4 REGISTRY
CN 1,3,5-Triazine-1,3,5(2H,4H,6H)-triethanol (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN s-Triazine-1,3,5(2H,4H,6H)-triethanol (8CI)
OTHER NAMES:
CN 1,3,5-Tris(2-hydroxyethyl)hexahydro-1,3,5-triazine
CN 1,3,5-Tris(2-hydroxyethyl)hexahydro-s-triazine
CN Actane
CN Acticide GR
CN Bactraclean
CN Busan 1060
CN Busan 1506
CN ETA 75
CN Grotan B
CN **Grotan BK**
CN Hexahydro-1,3,5-tri(2-hydroxyethyl)-s-triazine
CN Hexahydro-1,3,5-tris(2-hydroxyethyl)-s-triazine
CN Kalpur TE
CN KM 200
CN KM 200 (alcohol)
CN N,N',N''-Tris(.beta.-hydroxyethyl)hexahydro-s-triazine
CN N,N',N''-Tris(2-hydroxyethyl)hexahydro-s-triazine
CN Onyxide 200
CN Roksol T 1-7
CN Surcide D
CN Surcide P
CN Triadine 3
FS 3D CONCORD
DR 63310-09-8
MF C9 H21 N3 O3
CI COM
LC STN Files: AQUIRE, BEILSTEIN*, BIOBUSINESS, BIOSIS, CA, CAPLUS, CASREACT, CHEMLIST, CIN, CSCHEM, CSNB, DETHERM*, EMBASE, IFICDB, IFIPAT, IFIUDB, MEDLINE, MSDS-OHS, NIOSHTIC, PIRA, PROMT, RTECS*, SPECINFO, TOXCENTER, ULIDAT, USPAT2, USPATFULL
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)



**PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT**

248 REFERENCES IN FILE CA (1962 TO DATE)
20 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
248 REFERENCES IN FILE CAPLUS (1962 TO DATE)

L20 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2002 ACS
RN 66204-44-2 REGISTRY
CN Oxazolidine, 3,3'-methylenebis[5-methyl- (9CI) (CA INDEX NAME)
OTHER NAMES:
CN Grotan OX
CN **MAR 71**
FS 3D CONCORD
MF C9 H18 N2 O2
LC STN Files: BEILSTEIN*, BIOSIS, CA, CAPLUS, CHEMLIST, IFICDB, IFIPAT, IFIUDB, MEDLINE, TOXCENTER, USPAT2, USPATFULL
(*File contains numerically searchable property data)
Other Sources: EINECS**
(**Enter CHEMLIST File for up-to-date regulatory information)

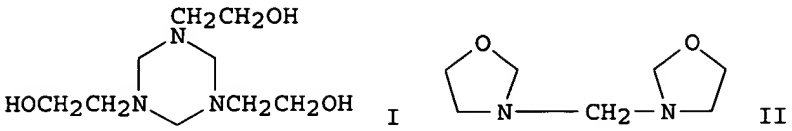



**PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT**

15 REFERENCES IN FILE CA (1962 TO DATE)
15 REFERENCES IN FILE CAPLUS (1962 TO DATE)

CLASSIFICATION: 28-6 (Heterocyclic Compounds (More Than One Hetero Atom))

GRAPHIC IMAGE:



I II

ABSTRACT:
The condensation of HOCH2CH2NH2 with HCHO gives, in addn. to the expected s-triazine I, the bisoxazolidine II. The yield of II increases with increasing amt. HCHO and is quant. at HOCH2CH2NH2-HCHO = 1:1.5.

SUPPL. TERM: ethanolamine cyclocondensation formaldehyde; **oxazolidine methylenebis**

INDEX TERM: Cyclocondensation reaction
(of ethanolamine with formaldehyde, N,N'-methylenebisoxazolidine formation in)

INDEX TERM: 50-00-0, reactions
ROLE: RCT (Reactant); RACT (Reactant or reagent)
(cyclocondensation of, with ethanolamine)

INDEX TERM: 141-43-5, reactions
ROLE: RCT (Reactant); RACT (Reactant or reagent)
(cyclocondensation of, with formaldehyde)

INDEX TERM: 66204-43-1P
ROLE: FORM (Formation, nonpreparative); PREP (Preparation)
(formation of, in condensation of ethanolamine with formaldehyde)

=>

```
d his ful

     (FILE 'HOME' ENTERED AT 10:14:15 ON 14 JUN 2003)

     FILE 'REGISTRY' ENTERED AT 10:14:21 ON 14 JUN 2003
L1             1 SEA 66204-44-2
                 D

     FILE 'EMBASE, BIOSIS, EUROPATFULL, JAPIO, ADISCTI, ADISINSIGHT, ADISNEWS,
     BABS, BIOBUSINESS, BIOCOMMERCE, BIOTECHNO, CANCERLIT, CAPLUS, CBNB, CEN,
     CIN, CONFSCI, DGENE, DIOGENES, DRUGB, DRUGLAUNCH, DRUGMONOG2, DRUGNL,
     DRUGU, DRUGUPDATES, EMBAL, ESBIOBASE, ...' ENTERED AT 10:14:59 ON 14 JUN
     2003
L2           266 SEA (METHYLENEBIS OR METHYLENE BIS) (3A) (OXAZOL? OR METHYLOXAZ
                 OL? OR METHANEOXAZOL?) OR L1

     FILE 'REGISTRY' ENTERED AT 10:18:57 ON 14 JUN 2003
                 SET SMARTSELECT ON
L3               SEL L1 1- CHEM :       3 TERMS
                 SET SMARTSELECT OFF

     FILE 'EMBASE, BIOSIS, EUROPATFULL, JAPIO, ADISCTI, ADISINSIGHT, ADISNEWS,
     BABS, BIOBUSINESS, BIOCOMMERCE, BIOTECHNO, CANCERLIT, CAPLUS, CBNB, CEN,
     CIN, CONFSCI, DGENE, DIOGENES, DRUGB, DRUGLAUNCH, DRUGMONOG2, DRUGNL,
     DRUGU, DRUGUPDATES, EMBAL, ESBIOBASE, ...' ENTERED AT 10:18:58 ON 14 JUN
     2003
L4           1248 SEA L3/BI
L5           1473 SEA L2 OR L4
L6           1400 DUP REM L5 (73 DUPLICATES REMOVED)
                 D 1-
                 D 210 IALL
                 D 210 IALL
                 D 1-210
                 D 209 IALL
                 D 206 IALL
                 D 197 IALL
                 D 194 IALL
                 D 187 IALL
                 D 124 KWIC\
                 D 93 IALL
```